

polyurethane was coated via a spray, dip, brush or other method. When the material cured, the mandril was removed and the tubular braid could be pulled on both ends (put into compression) and the tubular braid would go back to its original diameter. This is important for several reasons; the method described here allows the material to be applied within the filaments instead of over the filaments. This decreases the overall diameter of the tubular braid significantly as opposed to putting a covering over it. Further, the integrity of the material in between the filaments as opposed to over the filaments is increased because as the expandable channel is pushed forward, the material is hidden within the braid and hence doesn't see the forces of the tissue against it. Using a covering over the braid, the forces during the pushing are directly transmitted to the covering over the braid. Even further, the reliability and cost to manufacture are greatly improved. Even further and of extreme import is the fact that using a liquid that cures or a thermoplastic covering that is melted into the braid as opposed to covering it allows for varying the porosity along the tubular braid. This is extremely important in those cases where variable porosity is desired such as when the device is being used for a filter such as in the case of trapping emboli that are loosened during interventional vascular procedures to name one instance. In this case the emboli could travel into the device where the pore size is large, but not pass through the device where the pore size is less. The emboli could then be removed once the device is un-deployed.

Several different types of tubular braid were coated with silicone rubber elastomer. In one case, the braid was expanded to some diameter greater than the relaxed and smaller diameter. This was accomplished using a Teflon mandril. With the tubular braid in this somewhat expanded condition, the assembly was coated with liquid silicone rubber. When it dried, the assembly could be elongated by putting the system into tension so that the smaller original diameter was achieved again. It could then be put into compression and thusly shortened so that it would expand and the braid was covered so that there could be no holes in between the filaments of the braid. Further, the overall diameter of the tubular braid was not increased except for maybe .0001". Even further, filter devices were made whereby the silicone rubber was sprayed or painted onto the tubular braid when it was in the deployed/expanded condition. Once dried, the assembly could be un-deployed and then re-deployed with ease and without any holes between the